

Maternal Human Immunodeficiency Virus-Associated Hypergammaglobulinemia Reduces Transplacental Transfer of Immunoglobulin G to Plasmodium falciparum Antigens in Cameroonian Neonates.

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Public Summary:

Background. Human immunodeficiency virus (HIV) infection reduces placental transfer of antibodies from mother to the fetus for many antigens; however, conflicting data exist for transfer of immunoglobulin G (IgG) to malarial antigens. The mechanism(s) underlying reduced placental transfer is unknown. Methods. Levels of maternal and cord total IgG, IgG subclasses, and cord-to-mother ratios (CMRs) were measured in 107 mother-cord pairs to 3 malarial antigens: circumsporozoite protein (CSP), apical membrane antigen 1 (AMA-1), merozoite surface protein 1 (MSP-1), and tetanus toxoid C-fragment (TTc). Results. Immunoglobulin G levels to CSP and TTc were lower in HIV+ mothers, and cord IgG to CSP, MSP-1, and TTc were significantly lower in neonates born to HIV+ mothers (all P values <.05). The prevalence of mothers with hypergammaglobulinemia was significantly higher among HIV+ women (68%) compared with HIV- mothers (8%) (P < .0001). Maternal hypergammaglobulinemia was associated with reduction in transplacental transfer of antibodies to CSP (P = .03), MSP-1 (P = .004), and TTc (P = .012), and CMRs <1 were found for MSP-1 (odds ratio [OR] = 6.5), TTc (OR = 4.95), and IgG1 to CSP (OR = 3.75, P = .025) in statistical models adjusted for maternal IgG. Conclusions. Data confirmed that HIV infections are associated with lower cord antibody levels to malarial antigens and that hypergammaglobulinemia may contribute to reduced antibody transfer.

Scientific Abstract:

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